


September 2021

The future of globalization

Investing in an interconnected world



“Tug on anything in nature
and you will find it connected
to everything else.”

— John Muir

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The nature of globalization

We consider globalization the interdependence that arises as goods, services, people, and information cross borders and encourage globally integrated markets. For example, smartphone components could leave factories in South Korea or Taiwan for assembly in China, and then the finished products cross the Pacific to the shelf of a U.S. retailer.

In John Muir's words, when one "pulls" open the production process for everyday items, one quickly sees complex and interconnected production processes.

Key takeaways on the future of globalization

- We believe that crosscurrents in technological, economic, and political forces likely will change the contours of globalization but not end it.
- However, the familiar pattern of extended supply chains fragmented across multiple low-wage production centers appears to be evolving towards more concentrated, high-tech, and regional trade. We believe that globalization is evolving toward much broader and persistent opportunities in traded services and cutting-edge technologies in the U.S. and parts of developing Asia.
- Increased trade in services due to technological innovations that benefit consumers should favor the U.S. Information Technology (IT) and Consumer Discretionary sectors — and those we expect to benefit from U.S. government intervention in a post-pandemic world, including Health Care — of the S&P 500 Index.
- U.S.-China trade and political tensions, as well as protectionist policies in these and other countries, may require firms to undertake sudden shifts in production centers and deepen their knowledge of local consumption patterns. This will compel multinationals to rely on technology and local knowledge to remain flexible. We believe that U.S. IT and Consumer Discretionary firms are well-positioned to compete in this challenging environment.

Key questions we consider in this report

How may globalization evolve and create opportunities for investors?

Which economic and geopolitical forces may shape future globalization?

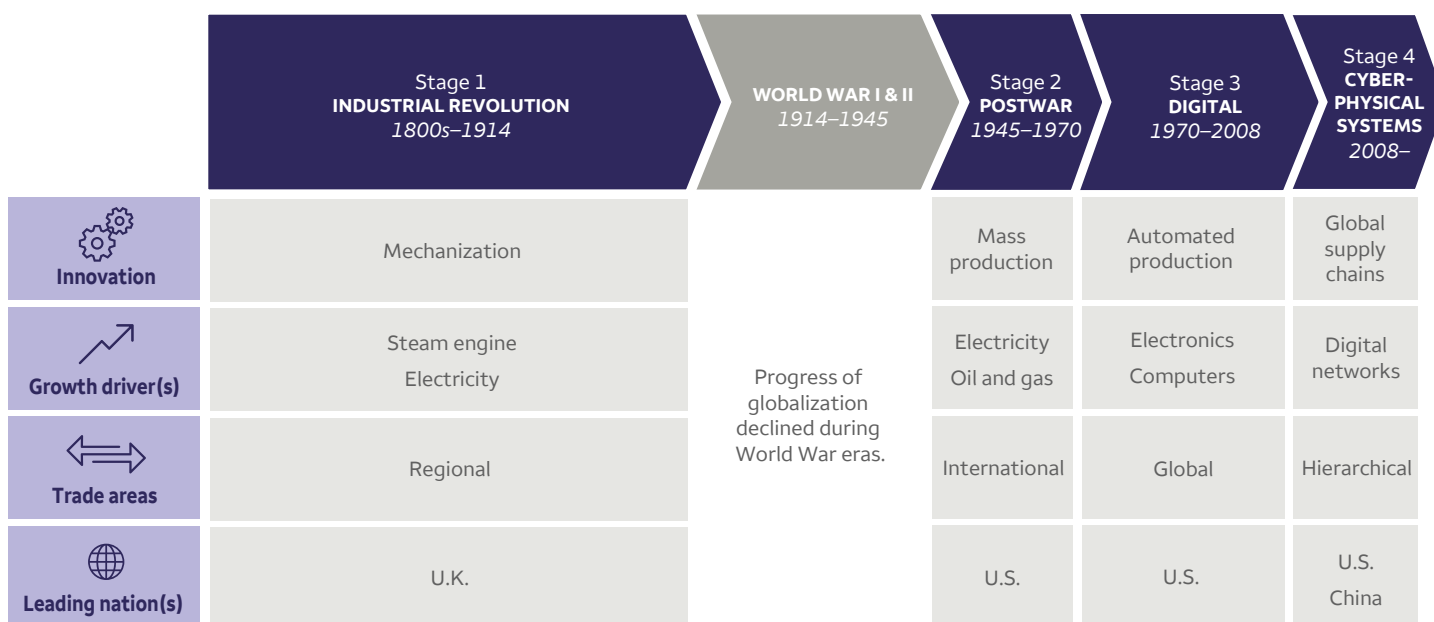
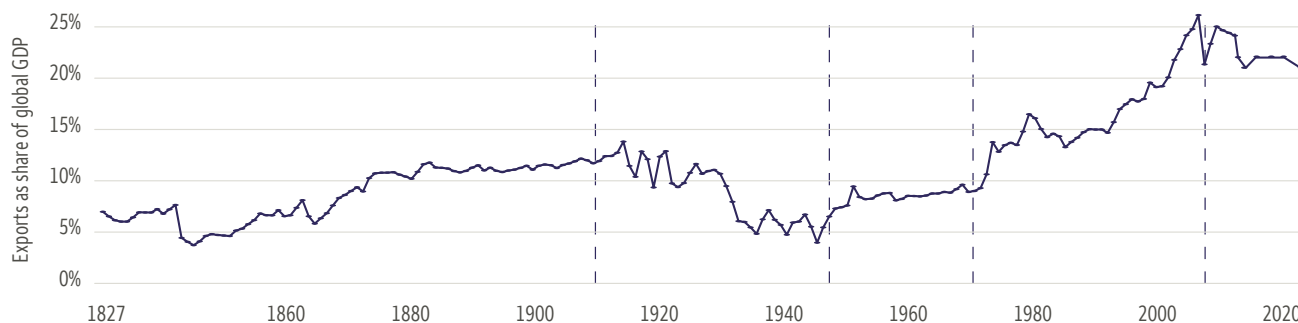
How may technological innovation help drive these trends?

What risks may impede globalization and which investments may benefit?

21st century globalization in the crosscurrents

Value of exported goods as a share of global gross domestic product (GDP), 1827–2020

Stages 1 and 3 show strong trade growth after innovations allowed companies to unbundle (that is, outsource production and distribution processes). Steamships powered trade growth in the late 1800s. Falling computing costs in the 1990s encouraged coordinated, cross-country production.¹ A main conclusion of this report is that we believe digital technologies will spur Stage 4 trade growth, mostly in services.



Sources: Wells Fargo Investment Institute; Michel Fouquin and Jules Hugot. "Two Centuries of Bilateral Trade and Gravity Data: 1827–2014," CEPII Working Paper 2016-14, May 2016; World Economic Forum, "A Brief History of Globalization," January 17, 2019; and Bosch, "The Four Stages of the Industrial Revolution," May 4, 2018

We all are accustomed to buying things made in distant countries. Yet, the growth of trade in consumer goods has slowed since 2009, as shown in the chart above. Part of this flatter trajectory stems from the increasing tendency to locate production facilities near the target markets for those goods. Moreover, governments are turning increasingly to tariffs on imported goods and subsidies on local production to promote domestic over foreign goods.

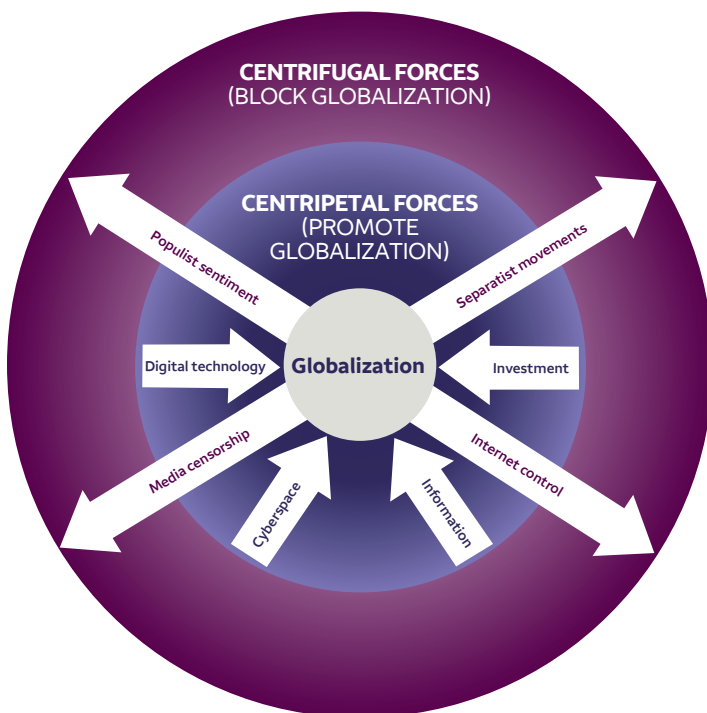
Supply chains across continents create vulnerabilities or dependencies that can stoke nationalist or populist tensions that aim to limit trade and the movement of people, information, and investment. The COVID-19 pandemic exposed U.S. reliance on offshore suppliers, who shuttered factories for masks, protective gear, and medical equipment when they were needed most.

But globalization has found other supports, especially cyberspace and digital technology. Near-instantaneous exchanges of information and investment promote market integration that we consider one of the strongest forces of globalization. In a metaphor from Parag Khanna’s book, *Connectography*, forces that direct economies toward a centralized global market are the “centripetal influences” on globalization.²

Over the next decade, we expect that innovative technologies will continue to foster trade and forge even greater global connectedness, but political and institutional forces will continue to shape how that connectedness impacts local economies. Countries or regions may aspire to be globally linked but to do so in their own way. For example, we observe separatist movements in Catalonia, Scotland, and the United Kingdom (Brexit). Russia is reasserting influence along its borders among the countries the Kremlin long has called the nation’s “near abroad.” For its part, Beijing controls internet content throughout China. To borrow Khanna’s language again, these are the “centrifugal influences” that disperse the forces of globalization.

In our view, 21st-century globalization will continue evolving as familiar centripetal forces advance while, at the same time, individual countries exert opposing or centrifugal forces. The churn between these two crosscurrents likely will reshape globalization trends. We contend that today’s crosscurrents influencing globalization will affect how deep the interconnectedness of people and markets will grow and, in the process, will create investment opportunities that we favor, both domestically and overseas. This report reveals how we expect international investment opportunities to develop during the next decade: through selective exposure to regions and sectors and in companies that can successfully marshal emerging technologies.

Opposing forces of globalization



Source: Wells Fargo Investment Institute

Currency trade growth

\$500 billion to \$6.5 trillion

Amount global currency traded grew between 1989 and 2019.

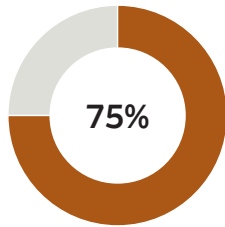
Source: Bank for International Settlements (BIS), total foreign exchange turnover, including spot, forwards, swaps, and options. From the BIS triennial survey of foreign exchange and over-the-counter derivatives trading, as of March 2019.

Centrifugal-Centripetal tension

The concepts of centrifugal and centripetal forces come from physics. Centripetal forces are inward, center-seeking and integrative, working to keep a state together — like a tetherball circling a pole. Centrifugal forces are outward, center-leaving and dispersive, working to break apart a central state — something like the spin cycle of a washing machine.

The evolution of trade in consumer goods

Executives expect more investment in technology



Percentage of North American and European executives that expect investment in new technologies to accelerate between 2020 and 2024

Source: McKinsey Global Institute, December 2020

Trade in manufactured goods perhaps has been the most obvious place to see the churn between centripetal and centrifugal forces of 21st century globalization. A rise in nationalistic sentiment has sparked a more active role for governments in protecting local industries from offshore competition. From 2018 to 2019, the U.S. and China ratcheted up tariffs on each other's goods, and worldwide, government subsidization is a rapidly growing trade-protection strategy.

Moreover, China is becoming one of the world's largest consumer markets, as government policy favors local production for local consumption.³ Together, protectionist and self-sufficiency policies historically tend to regionalize trade by focusing production, consumption, and trade around the world's largest consumer markets — the U.S., China, and India. We believe this is a key trend. There is some evidence that the trend is already developing, as global goods trade slowed perceptibly following China's 2012 policy change to emphasize domestic consumption, and especially after the U.S.-China tariff escalations since 2018 (see chart on page 7).

Technology helps drive operational decision-making

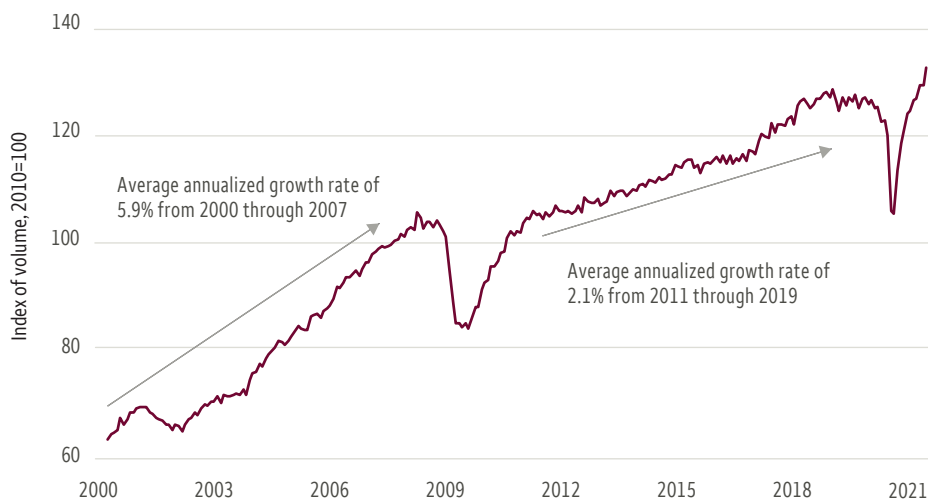
As knowledge enhances productivity, manufacturers are turning to highly skilled labor, reducing multilateral exchanges in intermediate products and facilitating regional production. Robots and autonomous processes replace low-wage labor, allowing production to return to developed countries or near the large consumer markets of the U.S., India, and China. Meanwhile, digital platforms and high-speed data processing reduce transportation and financing costs. Some examples include:

- Robotic tools and autonomous vehicles have automated the ports of Rotterdam in the Netherlands and Caofeidian off the northeast coast of China.⁴
- London's Heathrow Airport launched an autonomous baggage-handling vehicle to ferry baggage between planes and the terminal.⁵
- Blockchain, the foundation of cryptocurrency trading and transparency, replaces some paper contracts, executes immediate payments upon receipt of goods, and is less vulnerable to fraud than traditional contracts and payment methods.⁶
- Powerful icebreaker container ships can transport electronics from Busan, South Korea, to Hamburg, Germany, via the North Sea in half the time it takes to sail around the Cape of Good Hope.⁷
- 3-D printing, sometimes called additive manufacturing, does not substitute for mass production but can save time by replacing parts on a construction site or in a factory.⁸

A regional approach

The familiar pattern of extended supply chains fragmented across multiple low-wage production centers appears to be evolving to a more concentrated, high-tech, regional system. The broader implication is that manufacturers could shift their production focus to state-of-the-art, high-wage production centers closer to large consumer markets.

Merchandise trade activity is slowing

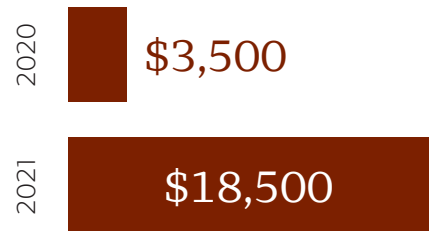


Sources: CPB Netherlands Bureau for Economic Policy Analysis and Wells Fargo Investment Institute, August 2, 2021

As merchandise trade continues to evolve, we see several salient points for investors:

- Technology applications in manufacturing and logistics should regionalize production closer to Indian, Chinese, and U.S. (and, to a lesser extent, European) consumer markets, implying a selective geographical focus for investing.
- The prevalence of automated technology in the automotive and electronics industries (of the Industrials sector) may signal broader adoption in the Consumer Discretionary sector as companies employ technological enhancements in regional production centers.
- Shipping costs since the pandemic have risen significantly. The price of transporting a standard shipping container from Asia to the U.S. has jumped from \$3,000 pre-pandemic to nearly \$19,000 this year.⁹
- However, the greatest impact may be in service-related industries, which we consider next.

Shipping costs from Asia to the U.S.



Source: Freightos, August 2021

The rising tide of information and innovation

Growth in internet connectivity, 2005–2019

+93%

Developed countries

+420%

Developing countries

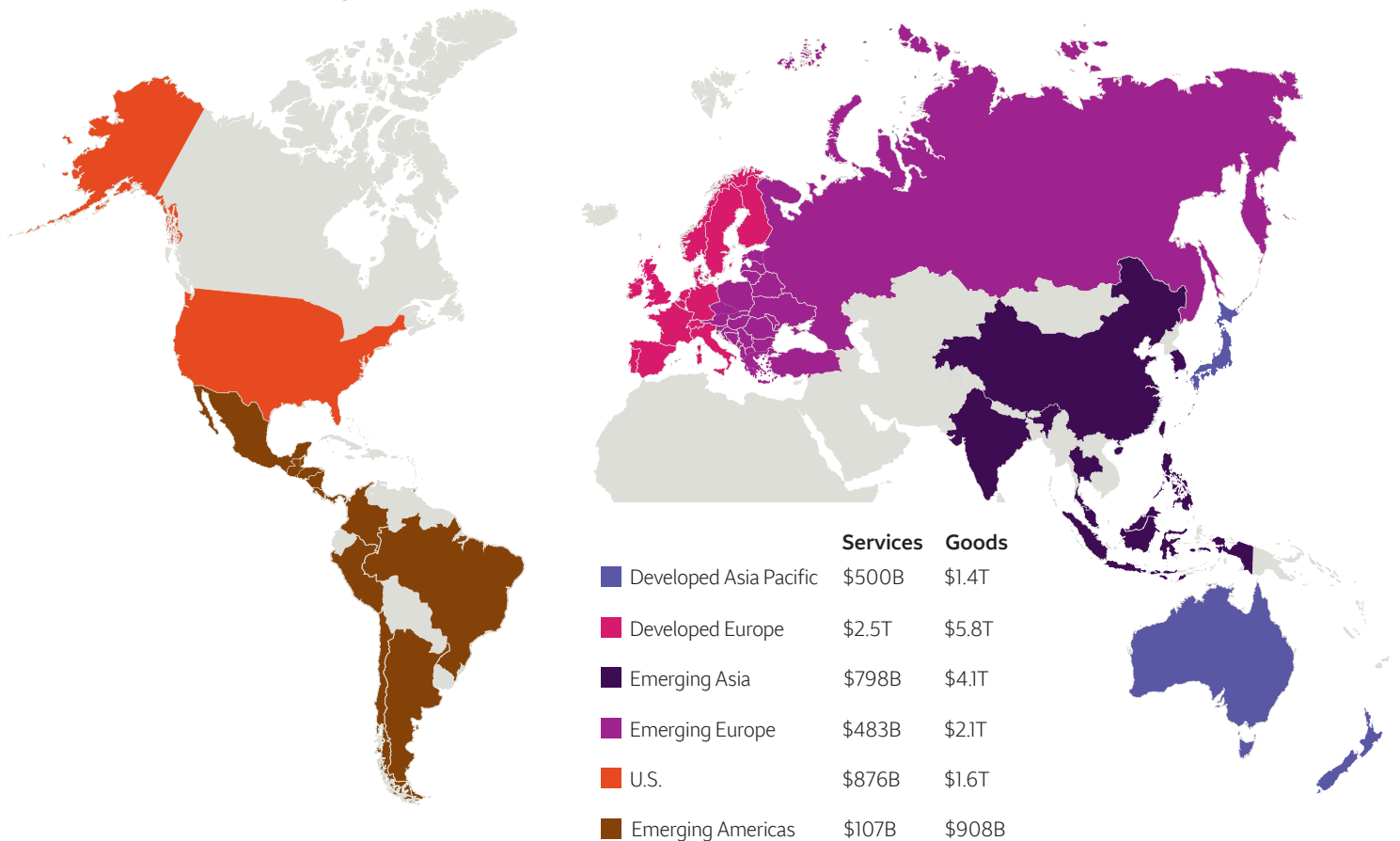
Source: International Telecommunication Union, August 20, 2021

Trade in services historically has been small relative to goods trade. It is difficult to transact a haircut, oil change, or surgical procedure with foreign clients outside the U.S. Technology has helped change that. Digital connectivity has developed rapidly, fueling a 20-year surge in measured services trade (see chart on page 9.) Over the next decade, we expect services trade to flourish through growth in intangibles and less obvious services bundled to consumer goods.

Trade in services is growing

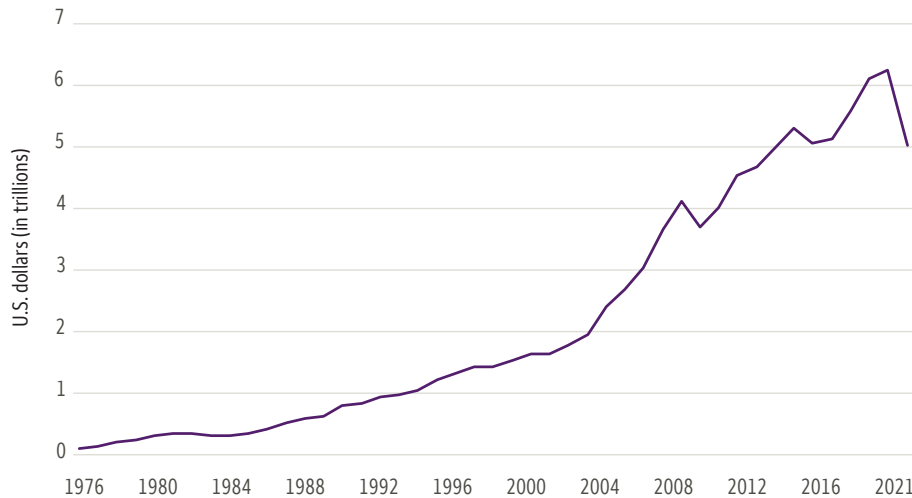
As measured by national statisticians, global services trade has grown nearly 23-fold since 1976¹⁰ and is doubling every five years.¹¹ Similarly, the share of investment in intangible assets, such as intellectual property and software, increased by 29% over the past 25 years.¹² Worldwide, exports in goods and services in 2019 totaled \$25 trillion, with \$6.2 trillion attributed to services. The share of trade in services could increase by 50% by 2040.¹³

Global trade in services and goods



Sources: World Trade Organization and Wells Fargo Investment Institute, as of 2019, August 2021. U.S. dollars: B=billions, T=trillions.

We expect that global services trade will continue to rise



Sources: World Bank and Wells Fargo Investment Institute. Annual data from December 31, 1976, to December 31, 2020. Forecasts are not guaranteed and are based on certain assumptions and on views of market and economic conditions, which are subject to change.

Trade in services is growing in the developing world. Emerging economies' share of global services trade has grown by double digits since 2005 and reached 25% of services exports in 2017. Yet, services trade activity remains highly concentrated. Five countries — the U.S., the U.K., Germany, France, and China — accounted for more than 35% of services trade globally in 2019.

Technology enhances tradability of services

We believe that services trade will grow faster than goods trade, bolstered by digital tools, such as streaming content, with the ability to deliver services virtually and at low cost.¹⁴ The rapid adoption of digitalization should continue to support services trade growth and provide cost-cutting and time-saving benefits for companies and consumers. E-commerce helps reduce costs while increasing quality and customization of services. We expect that digital-streaming services will continue to grow globally. Blockchain technology can expedite and safeguard payment processing.

Most globally traded services, cumulative growth, 2005–2020

- **Transactional:** 15.8%
- **Financial:** 131.9%
- **Information technology:** 211.6%

Source: World Trade Organization, December 31, 2020

Big five in global services trade

These countries accounted for more than 35% of services trade in 2019:

- U.S.
- U.K.
- Germany
- France
- China

Source: World Trade Organization, December 31, 2020

Anything as a service

It is likely that businesses will rethink their missions as service providers as opposed to simply goods makers. “Anything as a service” means firms make investments in structures or pieces of equipment across several countries. Customers then pay to use the resource rather than making the investment themselves. For business customers working overseas, it is convenient to use computer and internet resources of a hotel’s business center. Also, online labor service platforms help companies recruit independent contractors anywhere in the world.* For tourists, ride sharing internationally has morphed into options for “total transportation,” providing unlimited car rentals, taxis, city bikes, and public transit services. Services that stream entertainment globally now are common.

* *Worldwide Public Cloud Services Spending Guide*, International Data Corporation, August 1, 2021, provides a longer list of virtual business services worldwide.

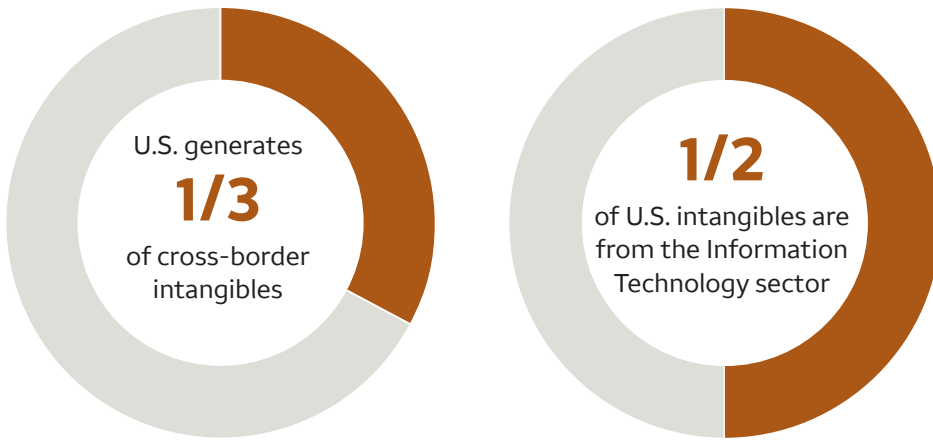
Expanding the possibilities for services trade

A manufacturer can add unique features to differentiate a product. Automobile and electronics makers differentiate their products with distinctive technical, style, and comfort features. Such features depend largely on research and development in design and marketing. We expect these service-oriented product differentiators to enhance a company’s ability to penetrate international markets and compete effectively with local firms. The developed economies have a competitive advantage in differentiators when selling into emerging markets and should retain their appeal even as China and India produce more goods for their own consumption.

Developed markets have a similar edge for intangibles.¹⁵ Companies that successfully design and brand their products with effective delivery systems create value that they can share with international subsidiaries. These intangibles, or “secrets of success,” may cost the same to create whether the subsidiary sells 10 units or 10 million.¹⁶ Consider a successful U.S. chain restaurant abroad. The Chinese subsidiary may use local labor and supplies and yet adapt the menu to local tastes. For example, a U.S. hamburger chain affiliate in Shanghai offers a boxed pineapple pie. Although intangibles may allow blending local ingredients into the menu, most of the recipes, the marketing, and even the store layout likely follow the direction of headquarters. Intangibles are another differentiator that should enhance the ability of U.S. and European multinationals to compete effectively against local firms in overseas markets. In short, intangibles may increase the attractiveness of investments in U.S. and European multinational firms.

Intangibles particularly favor the U.S., which by one estimate generates almost one-third of cross-border intangibles, with half of this attributed to the Information Technology sector. Germany and Japan trail the U.S. by a considerable distance.¹⁷ We believe U.S. companies are poised to build on their long-established assets. Of the *Forbes*' 100 Most Valuable Brands, only one Chinese firm made the list in 2020, giving U.S. companies a significant advantage over emerging market competitors during the coming decade.¹⁸

Intangibles favor the U.S.



Source: McKinsey and Co., "Globalization in Transition," January 19, 2019

Artificial intelligence potential growth

\$15.7 trillion

Amount artificial intelligence could contribute to global economy by 2030 — \$9.1 trillion from consumption and \$6.6 trillion from increased productivity

Source: PricewaterhouseCoopers, LLC, "Sizing the prize: What's the real value of AI for your business and how can you capitalise?" 2017

The demographic impact on trade

Internet connected generation

70%

Percentage of global population aged 15 to 24 with an internet connection. This youthful cohort exceeds the total population with an internet connection at 51%.

Source: International Telecommunication Union, August 20, 2021

Median age by region

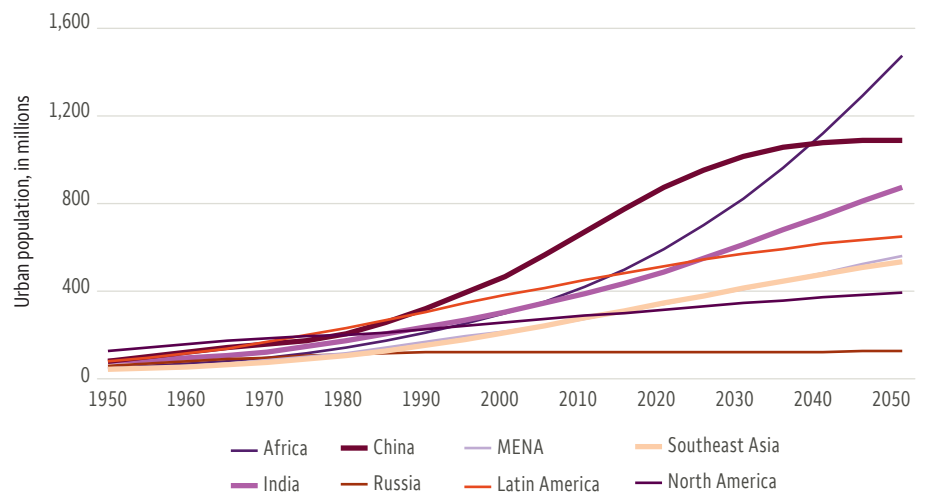
Africa	20
Middle East and North Africa	27
India	28
Southeast Asia	30
Latin America	31
China	38
North America	39
Russia	40

Source: U.S. Census Bureau, June 25, 2020

A 21st century consumer's profile

Populations in developed countries are generally aging, while in most emerging markets they are younger. The median age in Europe is 42; in Japan, it's 47.3. The U.S. median age is 38.6, with the 65+ cohort growing by 34.2% between 2010 and 2020.¹⁹ The median age of the African continent is 19.7. China's population is shrinking, but the more urbanized, working-age population, especially those born post-1990, has grown up with wealth, familiarity with Western consumer trends, and access to technology — none of which their parents or grandparents had.

Aside from Africa and India, population growth is peaking or in decline



Sources: United Nations and Wells Fargo Investment Institute, June 2019

Policymakers in Beijing largely target the younger generation of consumers to drive the economy. Their plan calls for these consumers to purchase goods made in China, especially digital products. China's emergence as a consumption center creates a second, major global hub for imports. Countries in Southeast Asia are preparing to support that endeavor by manufacturing basic parts and components for China.

India is another country with a growing, skilled workforce and availability of production technology that favors growth in the local production-to-consumption trend. India also enjoys a youthful population and the prospect of a burgeoning middle class.

Textiles and apparel offer a revealing illustration of the regional production and trade trend. Until now, raw fibers converted into textiles were produced in several developing countries and then cut and assembled in China for export to the U.S. Looking ahead, apparel production increasingly should occur, start to finish, in countries like Vietnam, Bangladesh, Malaysia, Indonesia, El Salvador, Barbados, and Mexico before ending up in shopping bags in Shanghai, Beijing, or the U.S. Seasonal changes in the fashion industry benefit producers capable of speedy production and proximity to market. We expect regional supply chains to consolidate for other products, including autos.

The demographics appear less favorable for other regions of the developing world. Latin America, Africa, and the Middle East lack the middle class to support growing local production, in our view. Eastern Europe has a strong industrial base, but it is oriented toward making intermediate components for Western European manufacturers. Unless these regions can develop qualified labor pools and attract new capital, they are unlikely to compete with Southeast Asia.

A concentration of regional hubs

Population growth in China and in developed economies is peaking or declining, but we believe India's growing population, and China's sizable middle class and next generation of consumers, are primed to lead in global spending. We believe that production centers increasingly will concentrate in regional hubs: India, China and Southeast Asia. Investment opportunities among emerging markets may narrowly focus on these locales in the future. We also expect opportunities among those U.S. and European multinational firms that can compete in these local markets.

China e-commerce growth

China's "Eleven-Eleven" Singles' Day shopping event, which ran for 11 days starting Nov. 11, 2020, was the largest single shopping event in the world and is set to replay annually.

China is the first country to have online shopping make up more than half of total retail sales.

Sources: "How U.S. Brands Can Get a Piece of the \$115B+ Singles' Day Opportunity," Retail Touch Points, July 22, 2021, and Chain Store Age, February 17, 2021

Emerging risks and subsidiary trends

Constraints and contagion — centrifugal forces

Globalization has connected the world. Yet, to many societies, the rapid pace of connectivity may appear as a potential risk or threat, causing them to limit or block those connections. While we do not believe any of these potential deterrents will derail the march toward a more connected world, the following have been — and likely will continue to be — sources of market volatility.

Border restrictions: Cross-border flows of information, cash, and people (migration) have triggered populism and policy reactions to protect local cultures, financial markets, and populations from intrusions. The risk of further unrest may be a headwind to globalization.

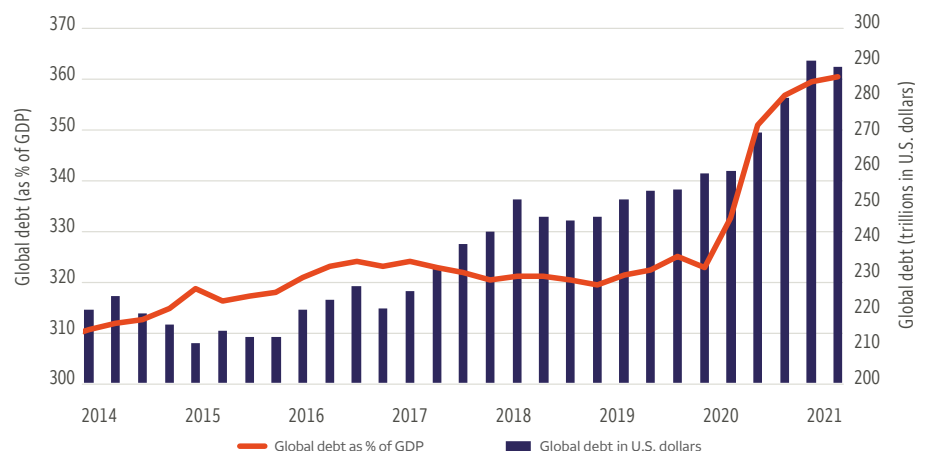
Infectious diseases: The movement of people across borders poses a risk of spreading communicable disease. The COVID-19 pandemic demonstrated that local infections can quickly become global.

Trade policy: As the global economy converts into a more regionalized world, inefficiencies may appear. Reorganizing trading partnerships may lead to tariffs and new regulations, raising production costs.

Cyberattacks: Cyberspace is the digital lifeblood of global connections. Malware and ransomware attacks from bad actors pose risks to communication networks and grids.

Rising global debt: Debt worldwide increased significantly over the past 20 years in both nominal U.S. dollar terms and as a percent of global GDP. Although developed market governments increased issuance after the pandemic hit, the lion's share of recent growth has come from emerging market nonfinancial corporate debt, such as industrial or commercial loans. Governments may seek to limit or constrain the holdings of their debt by international investors.

Global debt is rising



Sources: Institute of International Finance and Wells Fargo Investment Institute, as of August 16, 2021. Global GDP is calculated by the International Monetary Fund with data from the World Economic Outlook Database. Quarterly data from March 31, 2014, to March 31, 2021.

Subsidiary trends related to evolving globalization

Food chain disruption: The combined pressures of population and economic growth, climate change, and barriers to trade may continue to place stress on food supplies and upward pressure on agricultural prices. This, in part, supports our view of a new, potentially multiyear bull market in commodities.

Water rights: Water trading is the process of buying and selling water access entitlements, which takes place globally as an expanding population stretches limited water resources. The agricultural sector accounts for 70% of the world's water usage and over 40% in many developed countries, making water trading potentially attractive for both farmers and investors.²⁰

Cybersecurity: As data storage shifts to the cloud, reliance on perimeter security and even on national borders no longer guarantees the safety of data and software. Since 2019, the rise in cybersecurity funding has outpaced overall venture funding. During the first half of 2021, investors injected over \$12 billion into start-ups that develop products and services for privacy, security, and identity protection.²¹

Health care: Asia comprises about 60% of the world's population, with below-average health care expenditures per capita in developing countries. We look for rising health care expenditures and opportunities for investment in the growth and increased globalization of the Health Care sector.

Artificial intelligence (AI): By automating repetitive tasks and cognitive processes, AI can improve efficiencies and enhance knowledge and technological trade advantages, particularly in China and the U.S. We expect a variety of investment opportunities: old-line manufacturers that adopt and adapt; cash-rich technology companies that use Big Data for logistics (supply-chain management) or to control consumer purchasing or information management; and firms that build sizable portfolios of patent and intellectual property rights, especially in materials and processes.

Infrastructure: The demand for global infrastructure investment includes all parts of the energy supply chain, roads, railways, airports, and communications networks. Traditional sources of public funding are limited, and economic conditions are weak in many regions. Core infrastructure companies own long-duration global infrastructure assets with stable demand profiles and low cash-flow volatility. These investments may provide competitive risk-adjusted returns and an inflation hedge.

Ensuring food security

International trade will remain essential for food security in food-importing countries over the coming decade. Weather variability, animal and plant diseases, rising input prices and other uncertainties could drive prices and investment opportunities.

Source: Agricultural Outlook, 2021-2030, Agricultural and Food Markets: Trends and Prospects, Organization for Economic Cooperation and Development – Food and Agricultural Organization of the United Nations, 2021.

The contours of 21st century globalization

We believe that the confluence of centripetal and centrifugal forces likely will change the contours of globalization but not end it. Specifically, we expect globalization to transition from a model focused primarily on providing goods for Europe and North America toward regional trading hubs of production and consumption with increased production-to-consumption in the U.S., China, and India. Services are also poised to assume greater importance in global trade. Innovative technologies should reinforce the trends toward services and regional trade.

Three international investment trends

We see three key conclusions from our analysis:

Geographically, we favor U.S. large-cap equities first, then equities in parts of emerging Asia (especially China and India).

1 Globalization favors the U.S. and parts of developing Asia over other regions of the world

We believe that globalization is evolving toward much broader and persistent opportunities in traded services and cutting-edge technologies in the U.S. and parts of developing Asia. The next generation of technological advances may encourage some manufacturers to return to the U.S., but these firms are likely to require a workforce with advanced technical skills and will not simply restore the millions of assembly-line jobs lost during the past 25 years. To capitalize on supply-chain redesigns, we favor the U.S.

We view the overwhelming advantage of the U.S. as not only its leadership in technology and services but also the adaptability of its multinational companies. We favor parts of emerging Asia over Europe and Japan because of the competitive advantage in technology and production capabilities, especially in manufacturing (China) and services (India), and in the Southeast Asian economies that form part of China's industrial structure. Their growing middle class consumer bases and spending trends reinforce our outlook for increased domestic production. These geographic preferences align with recent increases to our strategic allocations in U.S. Large Cap Equities and Emerging Market Equities.

Increased trade in services should benefit the U.S. Information Technologies and Consumer Discretionary equity sectors, as well as Health Care, especially among the multinationals that compete against local firms in international consumer markets.

2 Certain sectors should benefit from expanding automation and services trade

Our expectation for increased trade in services due to technological innovations that benefit consumers should favor the U.S. Information Technology (IT) and Consumer Discretionary sectors — and those we expect to benefit from U.S. government intervention in a post-pandemic world, including Health Care — of the S&P 500 Index.

3 Centrifugal forces will remain, but investors have potential hedges

U.S.-China trade and political tensions, as well as national policies of countries around the world to protect local producers, may require sudden shifts in production centers and deeper knowledge of local consumption patterns. This will compel multinationals to rely on technology and local knowledge to remain flexible. We believe that U.S. IT and Consumer Discretionary firms are well-positioned to compete in this challenging environment.

Increasing U.S.-China political tensions should favor U.S. Information Technology and Consumer Discretionary sector multinationals that can compete across both countries.

Choose your China investment vehicle

Political tensions and new regulations from Beijing and Washington are likely to grow. Nevertheless, our research since the pandemic indicates that globalization should develop around regional centers in Asia and the developed economies, especially the U.S. We expect new investment opportunities over the coming decade as China develops a private sector to serve its 1.4 billion consumers. We believe potential opportunities will offset risks posed by regulatory and political hurdles. For investors interested in investing in China, we suggest the following vehicles:

Passive global funds

These funds already may have some Chinese market exposure, though likely limited by the political challenges.²² Small allocations through mutual funds and other passive investment vehicles may make sense for investors looking for exposure to globalization themes. Investors looking for additional exposure may want to capitalize on new globalization themes as they develop.

Active managers

Managers of stock-picking funds typically have experience in navigating Chinese rules and regulations and may have local analysts who look for quality Chinese companies. Active managers may be able to localize exposure more strategically in the particular sectors and regions that we favor, which we see as an advantage over passive investment choices.

U.S. or European multinationals

Successful multinationals often compete effectively with local firms and are adept at mitigating risks — including exchange rate movements — as they do business in China. A conservative investor may prefer to let companies “on the ground” mitigate risks.

ADRs

An American depositary receipt (ADR) gives an investor partial ownership in Chinese equity shares, but we favor caution around this approach. The U.S. has designated 35 of these issues as national security threats because of alleged ties to the Chinese military or intelligence service. More ADRs may fall under the same scrutiny.

Direct purchase of Chinese shares

Chinese companies listed on the main exchange in Shanghai are very difficult to purchase directly, if at all, but most of China’s largest companies also list on the Hong Kong exchange and can be more readily available for purchase by U.S. investors.

Endnotes

1. The term unbundling comes from Professor of International Economics Richard Baldwin. Please see *The Great Convergence: Information Technology and the New Globalization*, Cambridge, Massachusetts: Harvard University Press, 2016
2. Parag Khanna, *Connectography: Mapping the Future of Global Civilization*, Random House, April 19, 2016
3. *The Changing Nature of International Production: Insights From Trade in Value Added and Related Indicators*, OECD, December 2018
4. "Autonomous Shipping Ports," Global Infrastructure Hub, December 9, 2020
5. "Automated Baggage Dolly Launched to Market After Heathrow Trial," Airport World, February 25, 2021
6. Bhavya Bhandari, "Supply Chain Management, Blockchains, and Smart Contracts," 2018
7. William Booth and Amie Ferris-Rotman, "Russia's Suez Canal? Ships Start Plying a Less-Icy Arctic, Thanks to Climate Change," *The Washington Post*, September 8, 2018
8. Tomas Kellner, "An Epiphany of Disruption: GE Additive Chief Explains How 3D Printing Will Upend Manufacturing," GE Reports, November 13, 2017
9. Freightos, August 2021
10. World Trade Organization, December 31, 2020
11. Parag Khanna, *Connectography: Mapping the Future of Global Civilization*, Random House, April 19, 2016
12. McKinsey Global Institute, "Getting Tangible about Intangibles," June 16, 2021
13. World Trade Report 2019: "The Future of Services Trade"
14. For much more on the accelerator role that digital technology can play in driving services trade, please see Diana Korka, "UNCTAD Project on Measuring Exports of ICT-Enabled Services (Digitally-Delivered Services)" in *Simply Services: A Trade in Services Speaker Series*, World Trade Organization, Geneva, Switzerland, March 1, 2018
15. Jonathan Haskel and Stian Westlake's book *Capitalism without Capital*, 2018, identifies three categories of intangibles: intellectual or innovative property (R&D, licenses, design, and other creations), computerized information (software and databases), and economic competencies (advertising, marketing, organizational structure, and training).
16. A thorough treatise on intangibles and their importance for the global economy and financial markets is in Jonathan Haskel and Stian Westlake's book *Capitalism Without Capital: The Rise of the Intangible Economy*, Princeton University Press, 2017. A concise treatment of the measurement problem in national statistics appears in *World Intellectual Property Report 2017: Intangible Capital in Global Value Chains*, World Intellectual Property Organization, 2017. Also see Carol A. Corrado and Charles R. Hulten, "How Do You Measure a 'Technological Revolution'?" *American Economic Review*, Volume 100, Issue 2, May 2010.
17. McKinsey and Co., "Globalization in Transition," January 19, 2019
18. *Forbes*'100 Most Valuable Brands, 2020
19. U.S. Census Bureau, June 25, 2020
20. "Water in Agriculture," *Understanding Poverty*, The World Bank, July 30, 2021
21. The New York Times, "As Cyberattacks Surge, Security Start-Ups Reap the Rewards," July 26, 2021
22. For example, Chinese equities represent 4.14% of the MSCI All Country World Index and only 20% of the MSCI Emerging Markets Index, as of August 25, 2021. Both proportions are small considering that China's economy is among the two largest by income globally.

Risk considerations

Forecasts are not guaranteed and are based on certain assumptions and on views of market and economic conditions, which are subject to change.

All investing involve risks, including the possible loss of principal. There can be no assurance that any investment strategy will be successful. Investments fluctuate with changes in market and economic conditions and in different environments due to numerous factors, some of which may be unpredictable. Each asset class has its own risk and return characteristics. The level of risk associated with a particular investment or asset class generally correlates with the level of return the investment or asset class might achieve.

Equity securities are subject to market risk, which means their value may fluctuate in response to general economic and market conditions and the perception of individual issuers. Investments in equity securities are generally more volatile than other types of securities.

Investing in **foreign securities**, such as American Depositary Receipts, presents certain risks not associated with domestic investments, such as currency fluctuation, political and economic instability, and different accounting standards. This may result in greater share price volatility. These risks are heightened in emerging markets.

Sector investing can be more volatile than investments that are broadly diversified over numerous sectors of the economy and will increase a portfolio's vulnerability to any single economic, political, or regulatory development affecting the sector. This can result in greater price volatility.

Definitions:

The S&P 500 Index is a market-capitalization-weighted index composed of 500 widely held common stocks that are generally considered representative of the U.S. stock market.

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